

DEC-11-HTCA-D

TC11
DECtape system
engineering drawings

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DEC	PDP
FLIP CHIP	FOCAL
DIGITAL	COMPUTER LAB

TC11 ENGINEERING DRAWINGS

Drawing	Sheets	Description	Drawing	Sheets	Description
A-ML-TC11-0	2	DECTape Control Master List	D-BS-TC11-0-18	1	Output Gating 2
D-UA-TC11-0-0	3	DECTape Control	D-BS-TC11-0-19	1	Address Selection & Interrupt Control
A-PL-TC11-0-0	1	DECTape Control (Parts List)	D-IC-TC11-0-20	1	Bus Connectors
D-DI-TC11-0-32	2	Drawing Index List	D-BS-TC11-0-21	1	Bus Address Register (TCBA)
D-AD-7007048-0-0	1	Wired Assembly	D-BS-TC11-0-22	1	Word Count Register (TCWC)
A-PL-7007408-0-0	1	Wired Assembly (Parts List)	D-BS-TC11-0-23	1	TC11 Control Panel
D-MU-TC11-0-0	2	Module Utilization	D-BS-TC11-0-24	1	DECTape Timing
A-PL-TC11-0-01	2	Module Utilization (Parts List)	D-BS-TC11-0-25	1	TC11 Slave Response
			D-BS-TC11-0-26	1	Ready and Error Sequence
D-BS-TC11-0-02	1	DECTape Control Control	D-BS-TC11-0-27	1	NPR Transfer – DATI
D-BS-TC11-0-03	1	DECTape Control Errors	D-TD-TC11-0-28	1	NPR Transfer – DATO
D-BS-TC11-0-04	1	DECTape Control TP, UPS, Motion Control	K-WL-TC11-0-30 (complete)	1	Wire List
D-BS-TC11-0-05	1	DECTape Control			
D-BS-TC11-0-06	1	RWB and LPB	C-CS-M105-0-1	1	Address Selector
D-BS-TC11-0-07	1	Mark Track Decoder	D-CS-M228-0-1	1	Mark Track Decoder
D-BS-TC11-0-08	1	NPR Control	D-CS-M239-0-1	1	Three 4-Bit Counter/Registers
D-BS-TC11-0-09	1	Register Control	D-CS-M7820-0-1	1	Interrupt Control Module
D-BS-TC11-0-10	1	Slave Response & Maintenance Bits	B-CS-M783-0-1	1	Unibus Transmitter
D-BS-TC11-0-11	1	Command Register	D-CS-M795-0-1	1	Word Count & Bus Address Register
D-BS-TC11-0-12	1	TU56 Connections	D-CS-M796-0-1	1	Unibus Master Control
D-BS-TC11-0-13	1	Unibus Drivers and Receivers	C-CS-M798-0-1	1	Unibus Drivers
D-BS-TC11-0-14	1	Data Register 1	B-CS-G879-0-1	1	Transport Detector
D-BS-TC11-0-15	1	Data Register 2	B-CS-G888-0-1	1	Manchester Read/Write Amplifier
D-BS-TC11-0-16	1	Data Register 3	B-CS-854-0-1	1	Power Control
D-BS-TC11-0-17	1	Output Gating 1			

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MASTER DRAWING LIST

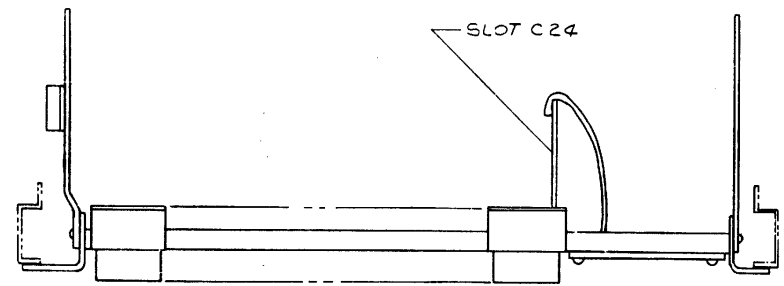
DWG. NO.	REV. LET.	NO. OF SHEETS	TITLE
D-UA-TC11-0-0	C	3	DEC TAPE CONTROL
A-PL-TC11-0-0	C	1	DEC TAPE CONTROL
D-DI-TC11-0-32	D	2	DRAWING INDEX LIST (TC11)
D-AD-7007048-0-0	A	1	WIRED ASSY
A-PL-7007048-0-0	A	1	WIRED ASSY
D-MU-TC11-0-01	E	2	MODULE UTILIZATION
A-PL-TC11-0-01	E	2	MODULE UTILIZATION
D-BS-TC11-0-02	C	1	DECTAPE CONTROL CONTROL
D-BS-TC11-0-03	B	1	DECTAPE CONTROL ERRORS
D-BS-TC11-0-04	A	1	DECTAPE CONT TP, UPS, MOTION CONT
D-BS-TC11-0-05	A	1	DECTAPE CONTROL
D-BS-TC11-0-06	A	1	RWB AND LPB
D-BS-TC11-0-07		1	MARK TRACK DECODER
D-BS-TC11-0-08	C	1	NPR CONTROL
D-BS-TC11-0-09		1	REGISTER CONTROL
D-BS-TC11-0-10	B	1	SLAVE RESP AND MAINT BITS
D-BS-TC11-0-11	A	1	COMMAND REGISTER
D-BS-TC11-0-12	C	1	TU56 CONNECTIONS
D-BS-TC11-0-13		1	INIBUS DRIVER AND RECEIVERS
D-BS-TC11-0-14		1	DATA REGISTER 1
D-BS-TC11-0-15		1	DATA REGISTER 2
D-BS-TC11-0-16		1	DATA REGISTER 3
D-BS-TC11-0-17	A	1	OUTPUT GATING 1
D-BS-TC11-0-18		1	OUTPUT GATING 2
D-BS-TC11-0-19	C	1	ADDR SEL AND INT CONT
D-IC-TC11-0-20		1	BUS CONNECTORS
D-BS-TC11-0-21	A	1	BUS ADDRESS REGISTER (TCBA)
D-BS-TC11-0-22	A	1	WORD COUNT REGISTER (TCWC)
D-BS-TC11-0-23		1	TC11 CONTROL PANEL
D-TD-TC11-0-24		1	DECTAPE TIMING
D-TD-TC11-0-25		1	TC11 SLAVE RESPONSE
D-TD-TC11-0-26		1	READY AND ERROR SEQUENCE
REVISIONS			
REV.	DATE	CHG. NO.	APP'D.
A	1/5/71	00002	P.J.

ADDITIONAL CUSTOMER PRINTS			
Drawing Number		Rev. Let.	Title
D-CS-M796-0-1		A	UNIBUS MASTER CONTROL
D-CS-M795-0-1		A	WC AND CMA MODULE
C-CS-M798-0-1			UNIBUS DRIVERS
B-CS-M783-0-1			UNIBUS DRIVERS
D-CS-M228-0-1			MARK TRACK DECODER
D-CS-M239-0-1			THREE "4" BIT CONVERTER REGISTER
B-CS-854-0-1		RA	POWER CONTROL
B-CS-G879-0-1			TRANSPORT DETECTOR
D-CS-M7821-0-1			INTERRUPT CONTROL

Rev.	Date	Change Number	
L	5-31-72	TC11-00012	Paul E. Janson11-25-70 Requested byDate Paul E. Janson11-25-70 Authorized byDate 3 Of 3A-ML-TC11-0 Rev. 1

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0-0-1101 2



VIEW A-A

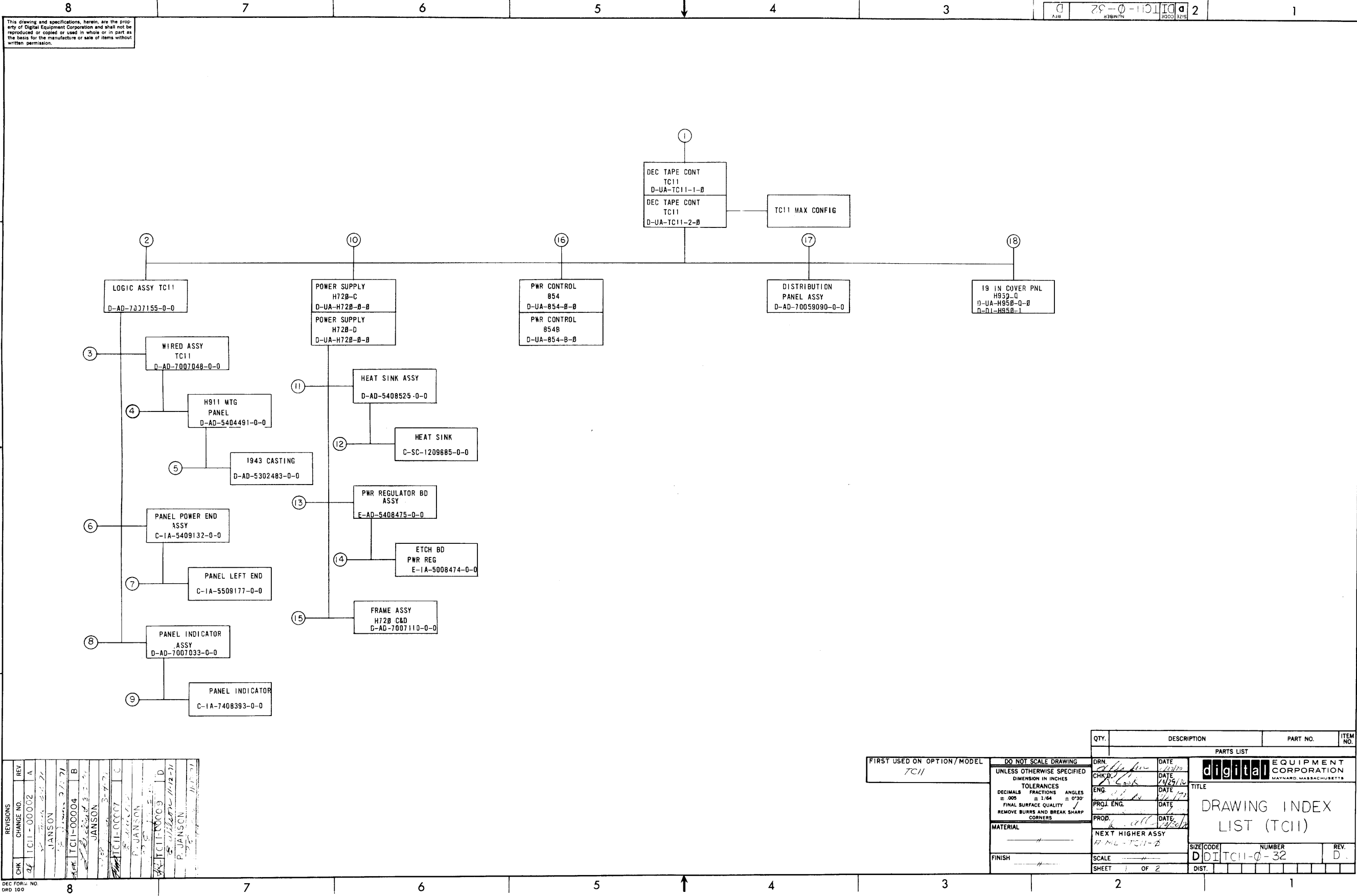
REVISIONS		REV.
CHK	CHANGE NO.	A
TC11-00002		
JANSON		
2-12-71		
B		
TC11-00009		
P. JANSON		
11-12-71		
C		
TC11-00012		
JANSON		
6-1-72		

DEC FORM NO. 100

FIRST USED ON OPTION/MODEL
PDF11

DO NOT SCALE DRAWING
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
ANGLES
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST			
digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS			
TITLE DEC TAPE CONTROL (TC11)			
SIZE/CODE DUA TC11-0-0		NUMBER C	REV C



REVISIONS		NO.	REV.
CHK	CHANGE NO.	NO.	REV.
24	TC11-00002	A	
	JANSON	2/1/71	
	JANSON	2/1/71	
	TC11-00004	B	
	JANSON	3/1/71	
	TC11-00007	C	
	JANSON	3/1/71	
	TC11-00009	D	
	JANSON	11/12/71	
	JANSON	11/12/71	

FIRST USED ON OPTION / MODEL
TC11

DO NOT SCALE DRAWING
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS FRACTIONS ANGLES
± .005 ± 1/64 ± 0°30'
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

Q

878WNN30003215

2

1

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2

1

1.

DEC TAPE CONTROL
DEC TAPE CONTROL
DEC TAPE CONTROL (P.L.)
POWER HARNESS

D-UA-TC11-1-0
D-UA-TC11-2-0
A-PL-TC11-0-0
D-IA-7007109-0-0

2.

LOGIC ASSY TC11
LOGIC ASSY (P.L.)
PANEL RIGHT END

D-AD-7007155-0-0
A-PL-7007155-0-0
C-MD-5302485-0-0

3.

WIRED ASSY TC11
WIRED ASSY (P.L.)
LOGIC FRAME DECALS

D-AD-7037048-0-0
A-PL-7007048-0-0
A-DC-7406371-0-0

4.

H911 MTG PANEL
H911 MTG PANEL (P.L.)
288 PIN CONN BLOCK #H803

D-AD-5404491-0-0
A-PL-5404491-0-0
E-SC-1205348-0-0

5.

1943 CASTING
1943 CASTING (P.L.)
1943 FRAME CASTING

D-AD-5302483-0-0
A-PL-5302483-0-0
E-MJ-1202885-0-0

6.

PANEL, POWER END ASSY

C-IA-5409132-0-0

7.

PANEL, LEFT END
SILK SCREEN

C-IA-5509177-0-0
A-SS-5509177-0-1

8.

PANEL INDICATOR ASSY
PANEL INDICATOR (P.L.)

D-AD-7007033-0-0
A-PL-7007033-0-0

9.

PANEL INDICATOR
SILK SCREEN

C-IA-7408393-0-0
B-SS-7408393-0-1

10.

PWR SUPPLY H720-C
PWR SUPPLY H720-D
PWR SUPPLY (P.L.)
PWR SUPPLY CHASSIS
PWR SUPPLY COVER
BRKT SUPPORT
CAPACITOR BRKT
PWR SUPPLY DECALS
PWR SUPPLY DECALS (120V)
PWR SUPPLY DECALS (240V)

D-UA-H720-C-0
D-UA-H720-D-0
A-PL-H720-0-0
E-IA-5308519-0-0
C-MD-5308518-0-0
C-MD-5303521-0-0
D-MD-5308520-0-0
B-DC-5308524-0-0
A-DC-5308771-0-0
A-DC-5308772-0-0

11.

HEAT SINK ASSY
HEAT SINK ASSY (P.L.)
COIL, TRANSFORMER

D-AD-5408525-0-0
A-PL-5408525-0-0
C-SC-1609762-0-0

12.

HEAT SINK
HEAT SINK BUSHING

C-SC-1203685-0-0
A-SC-0209475-0-0

13.

PWR REGULATOR BD. ASSY
PWR REGULATOR BD. ASSY (P.L.)
HEAT SINK
X-Y COORDINATE HOLE LOCATION
ASSY/DRILLING HOLE LAYOUT

E-AD-5408475-0-0
A-PL-5408475-0-0
B-MD-5308733-0-0
K-CO-5408475-0-4
AH-5408475-0-5

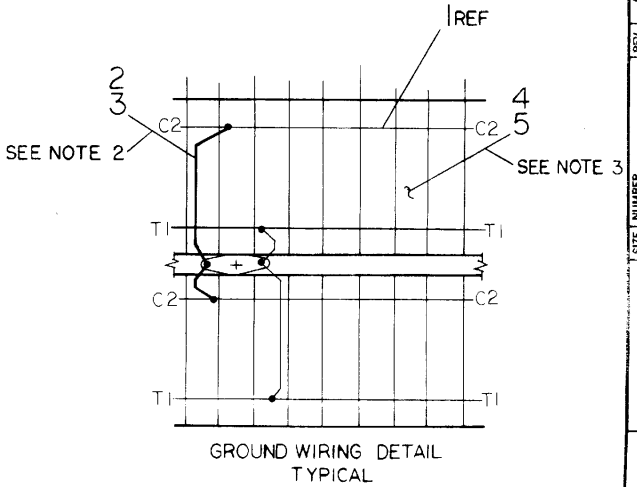
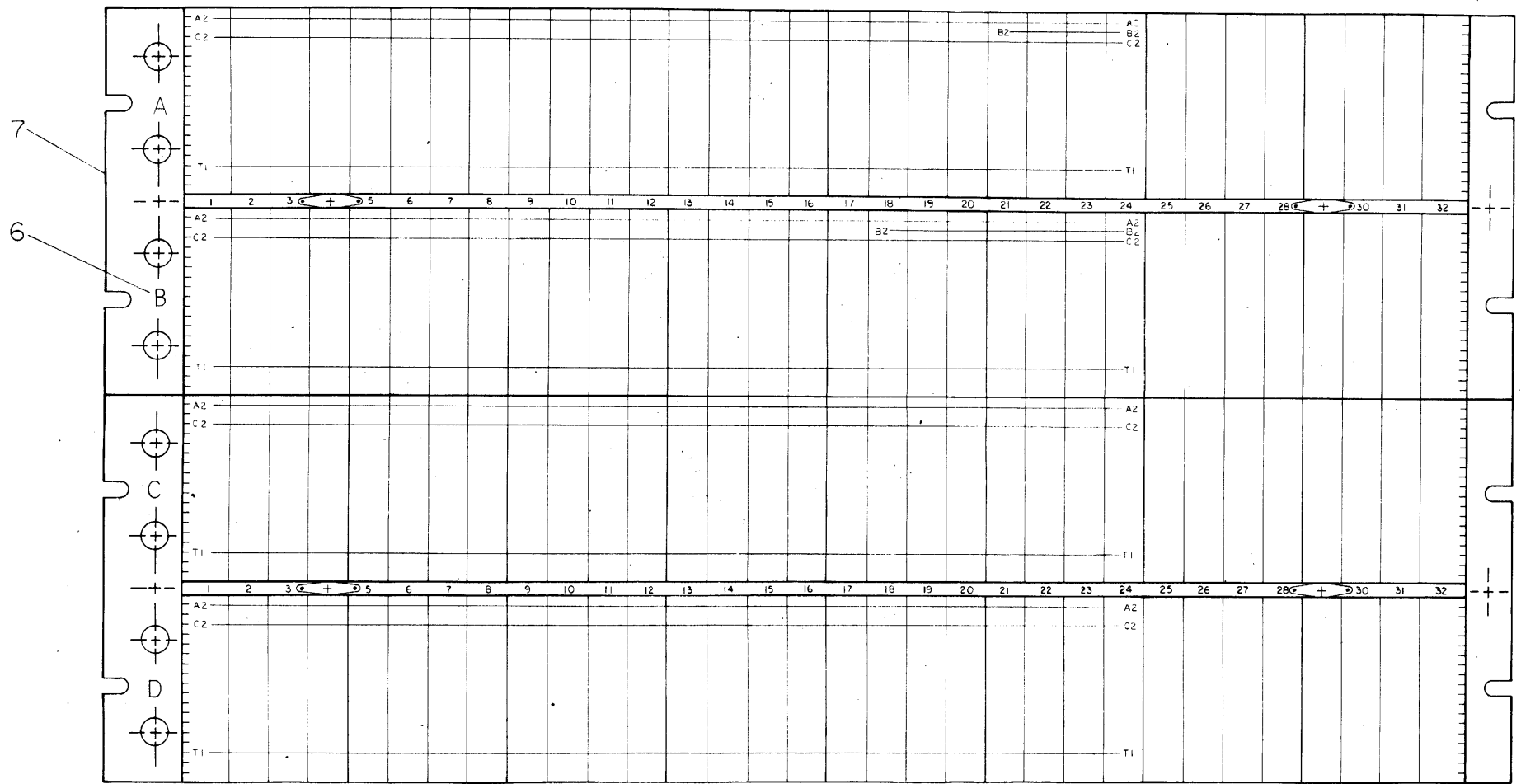
14.

ETCH BOARD PWR REG.
ASSY/DRILLING HOLE LAYOUT
PRINTED CIRCUIT L

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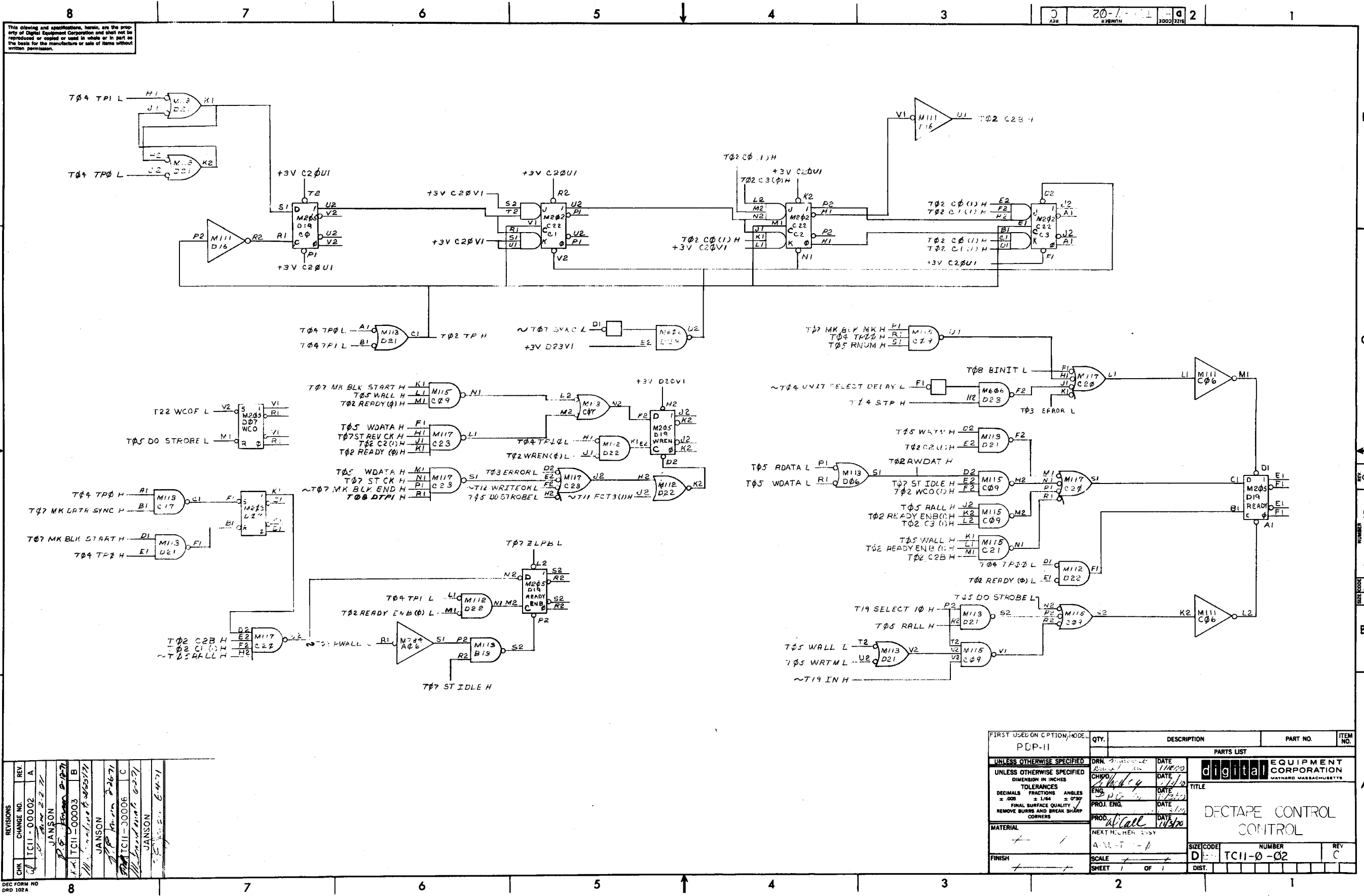
WIRE TABLE				
ITEM NO	AWG	COLOR	FROM CONNECTION	TO CONNECTION
5	24	BLUE	A21B2	B21B2
5	24	BLUE	B24B2	C24V2
8	24	RED	A01A2	B01A2
8	24	RED	C01A2	D01A2
8	24	RED	B01A2	C01A2
8	24	RED	A A2	B24A2
8	24	RED	C24A2	D24A2
8	24	RED	B24A2	C24A2

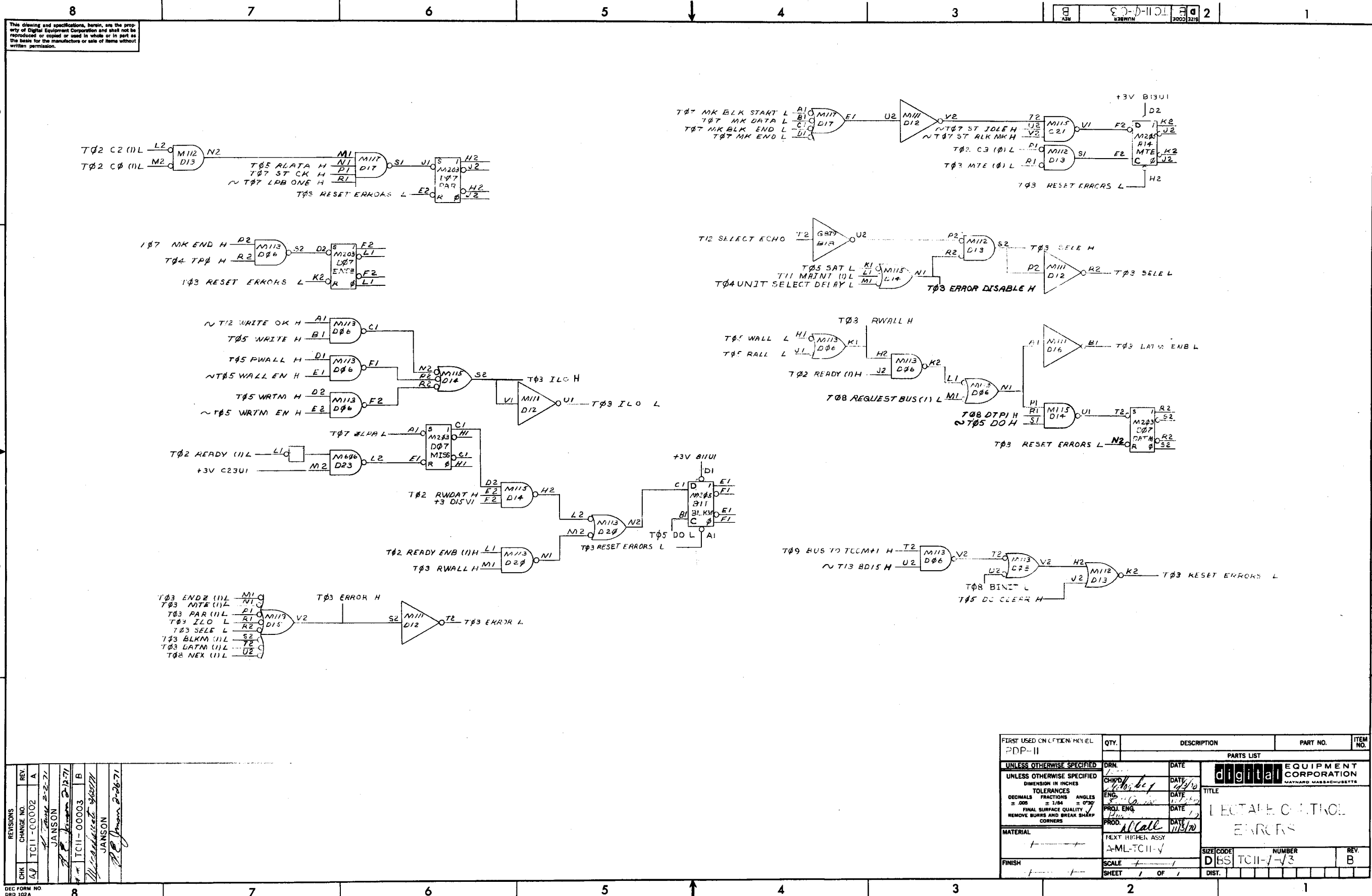
- NOTES:
- CONNECTIONS ON ITEM NUMBER 1 & 2 TO BE LOCATED AND SOLDERED AT MINIMUM PRACTICAL HEIGHT ABOVE BLOCKS.
 - ALL CONNECTOR BLOCKS TO BE GROUNDED TO GROUND LUGS AS SHOWN, 4 PLACES
 - USE YELLOW WIRE (ITEM#4) FOR MACHINE WRAPPED AND BLUE WIRE (ITEM#5) FOR HAND WRAPPED WIRING.

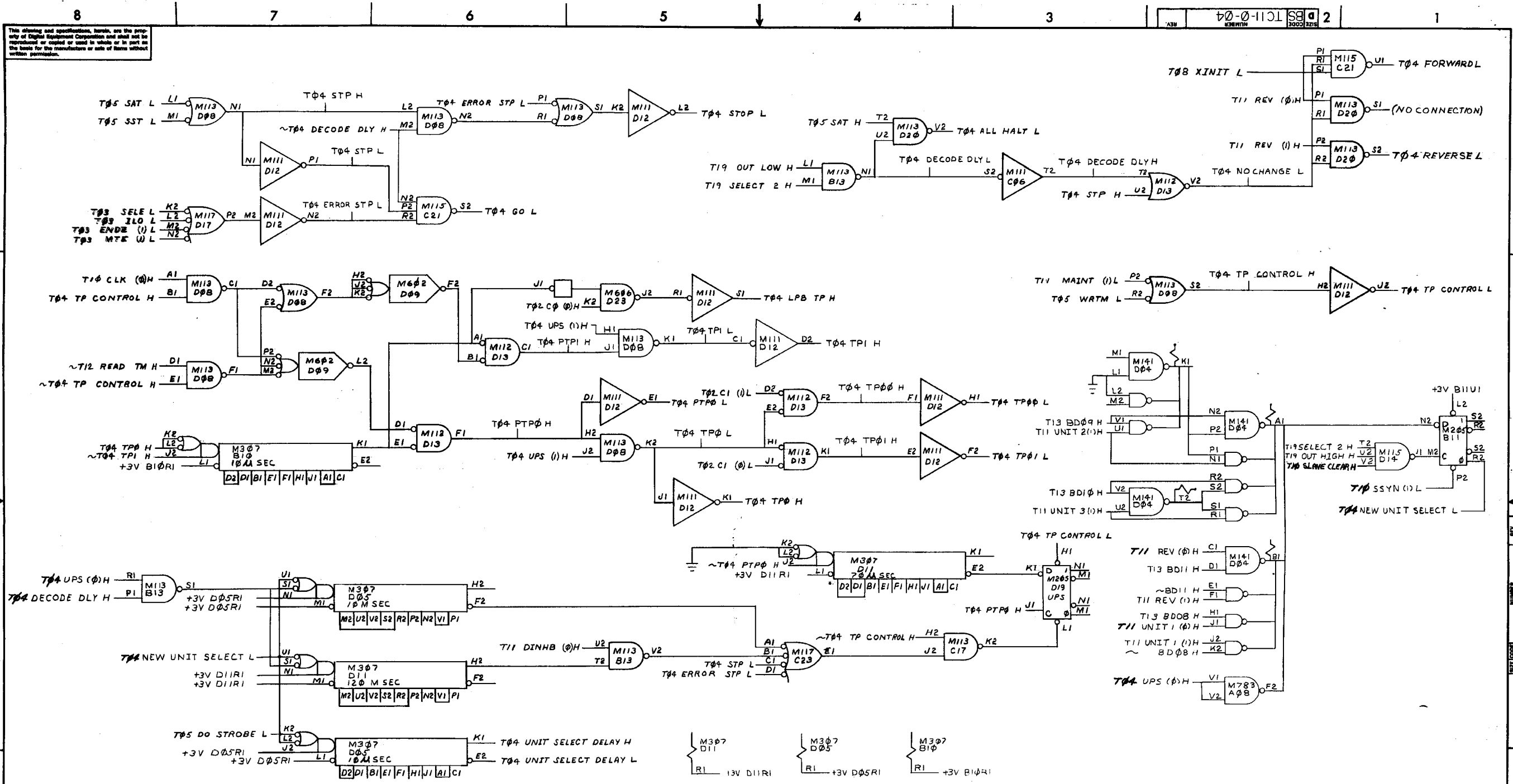


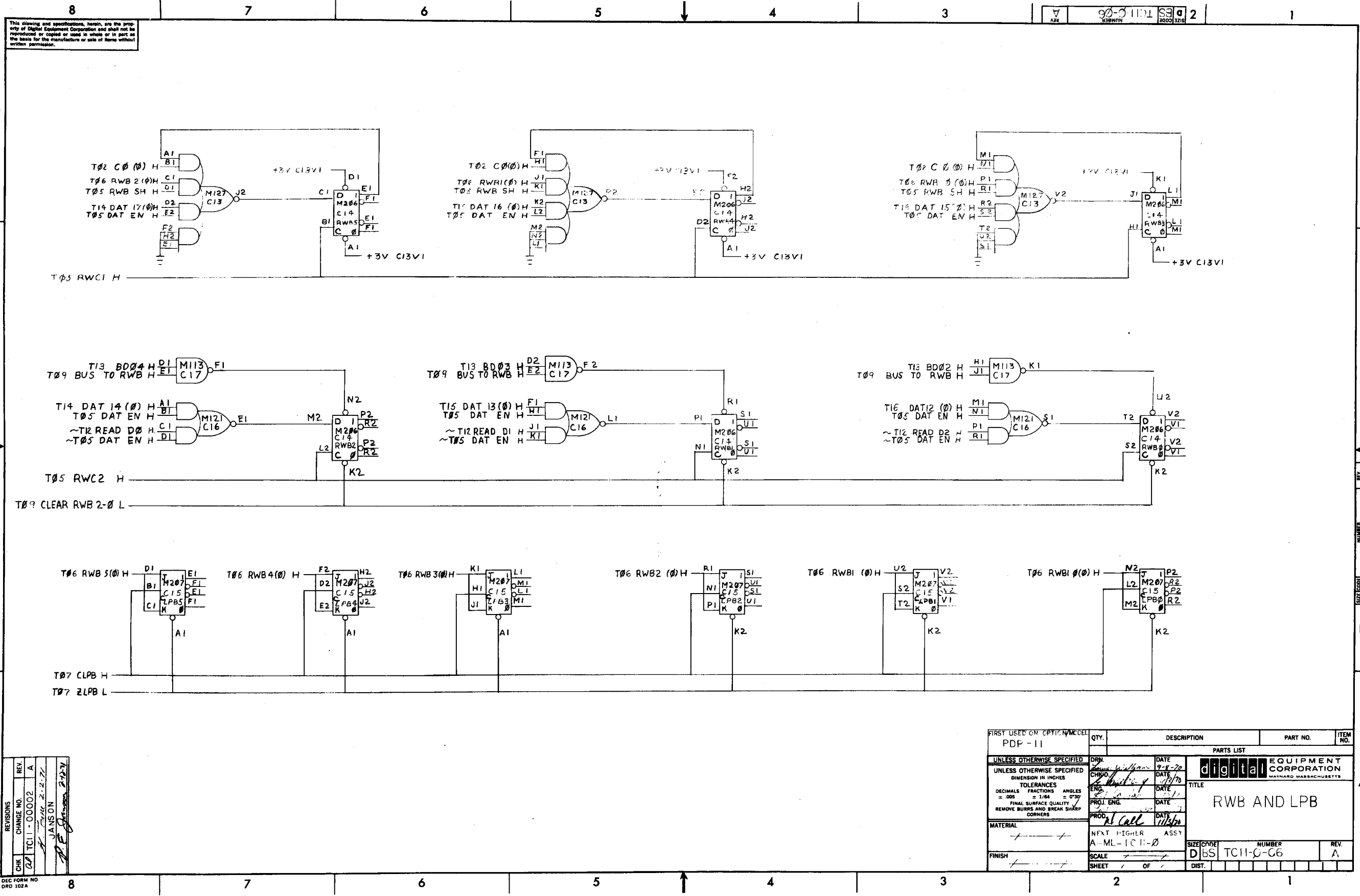
REVISIONS	CHANGE NO.	REV.
CHK	TC11-00002	A
DESIGNED BY	JANSON	
DRAWN BY	E. J. Jones	

FIRST USED ON OPTION/MODEL PDP-11	QTY.	DESCRIPTION	PART NO.	ITEM NO.
DO NOT SCALE DRAWING UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES DECIMALS FRACTIONS ANGLES = .005 = 1/64 = 0°30' FINAL SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS	DRN 7/1/60 DATE 11/3/60	CHK'D 1/1/60 DATE 1/1/60	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
MATERIAL +-----+ FINISH +-----+	PROD 1/1/60 DATE 1/1/60	PROJ. ENG. 1/1/60 DATE 1/1/60	TITLE WIRED ASS'Y TC11	
NEXT HIGHER ASSY C-11-11-1	SCALE NONE	SIZE/CODE D AD 7, 0, 7, 4		







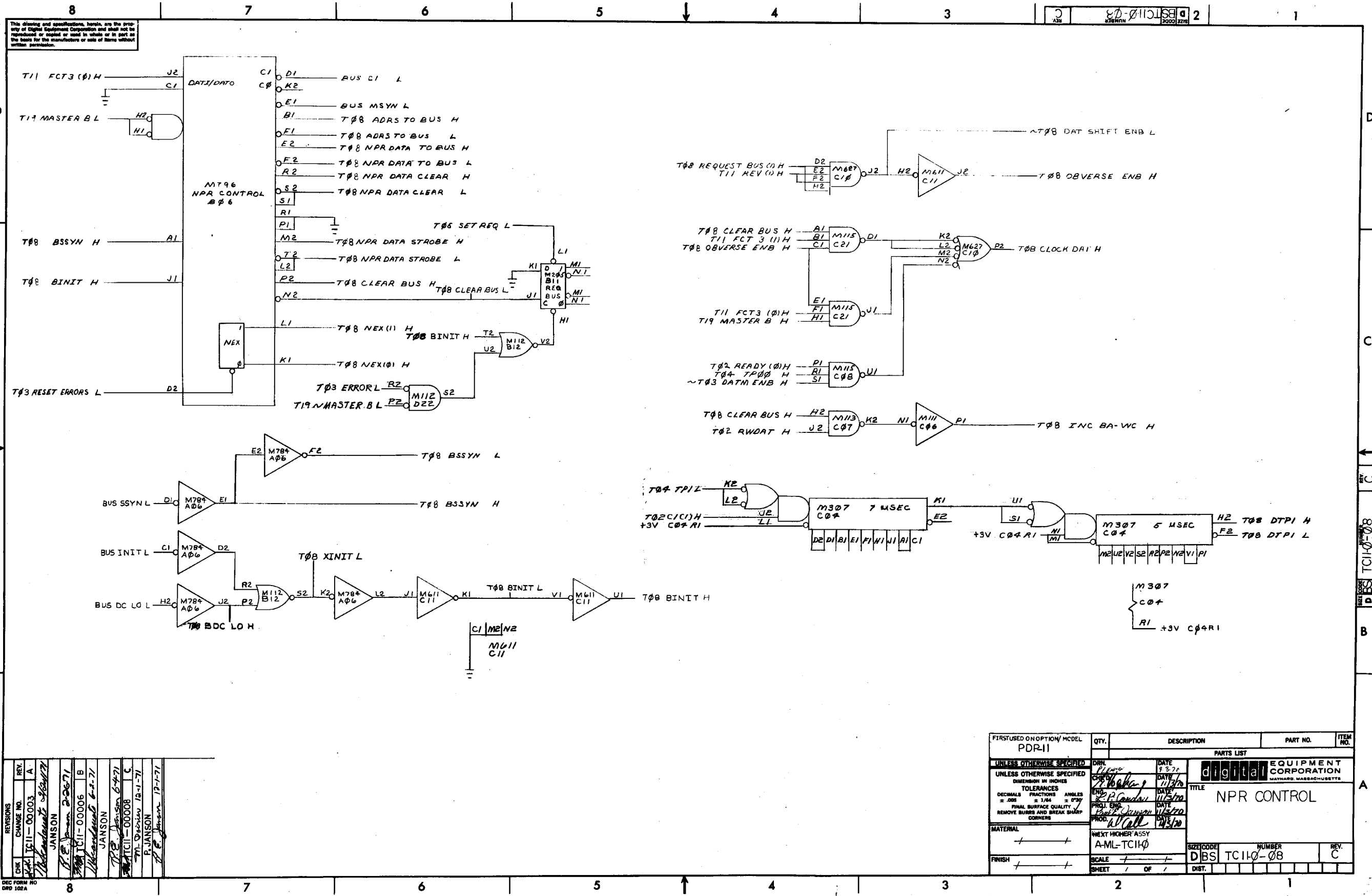


REV.	CHG.	NO.	DATE	BY
1	1	1	1/1/70	JANSON
2	2	2	2/1/70	JANSON
3	3	3	3/1/70	JANSON

REV.	CHG.	NO.	DATE	BY
1	1	1	1/1/70	JANSON
2	2	2	2/1/70	JANSON
3	3	3	3/1/70	JANSON

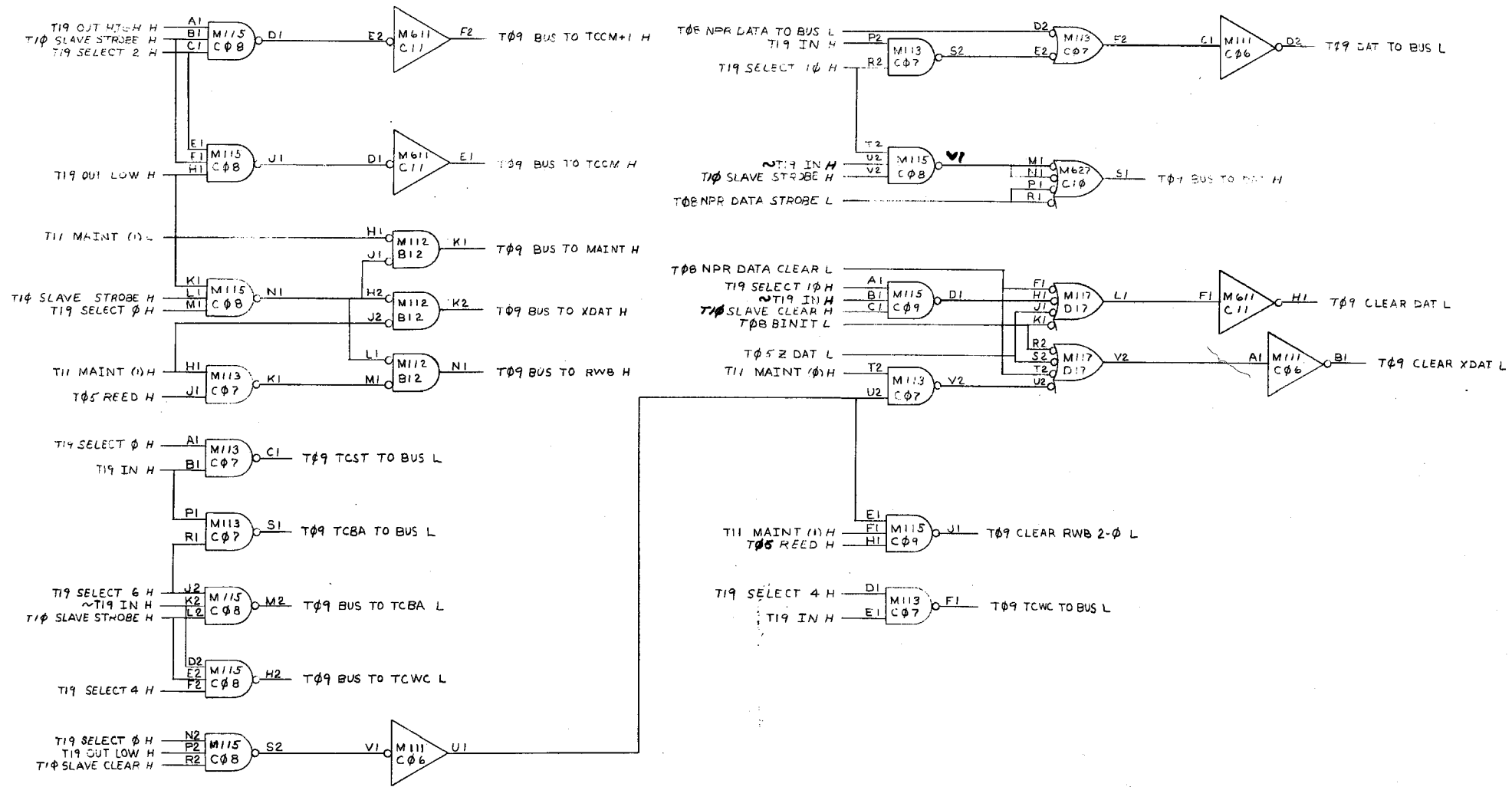
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UNLESS OTHERWISE SPECIFIED	CHN	DATE	1/1/70
UNLESS OTHERWISE SPECIFIED	ENG	DATE	1/1/70
UNLESS OTHERWISE SPECIFIED	PROD	DATE	1/1/70
UNLESS OTHERWISE SPECIFIED	FIN	DATE	1/1/70

UNLESS OTHERWISE SPECIFIED	DRN	DATE	9-1-70
UNLESS OTHERWISE SPECIFIED	CHN	DATE	1/1/70
UNLESS OTHERWISE SPECIFIED	ENG	DATE	1/1/70
UNLESS OTHERWISE SPECIFIED	PROD	DATE	1/1/70
UNLESS OTHERWISE SPECIFIED	FIN	DATE	1/1/



FIRST USED

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FIRST USED ON OPTION/MODEL PDP-11		QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST					
UNLESS OTHERWISE SPECIFIED		DRN.	DATE	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
UNLESS OTHERWISE SPECIFIED		CHG'D.	DATE	TITLE	
DIMENSION IN INCHES		ENG.	DATE	REGISTER CONTROL	
TOLERANCES		PROJ. ENG.	DATE	SIZE CODE	
DECIMALS FRACTIONS ANGLES		PROD.	DATE	NUMBER	
± .005 ± 1/64 ± .000		NEXT HIGHER ASSY		REV.	
MATERIAL		A-ML-TC11-0		D1BS TC11-0-09	
FINISH		SCALE		DIST.	
SHEET 1 OF 1		SHEET 1 OF 1		DIST.	

REV. 1
TC11-0-09

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T11 MAINT (0) H S1
T11 UNIT 3 (1) H U1
T11 UNIT 2 (1) H U2
T11 UNIT 1 (1) H U3

D

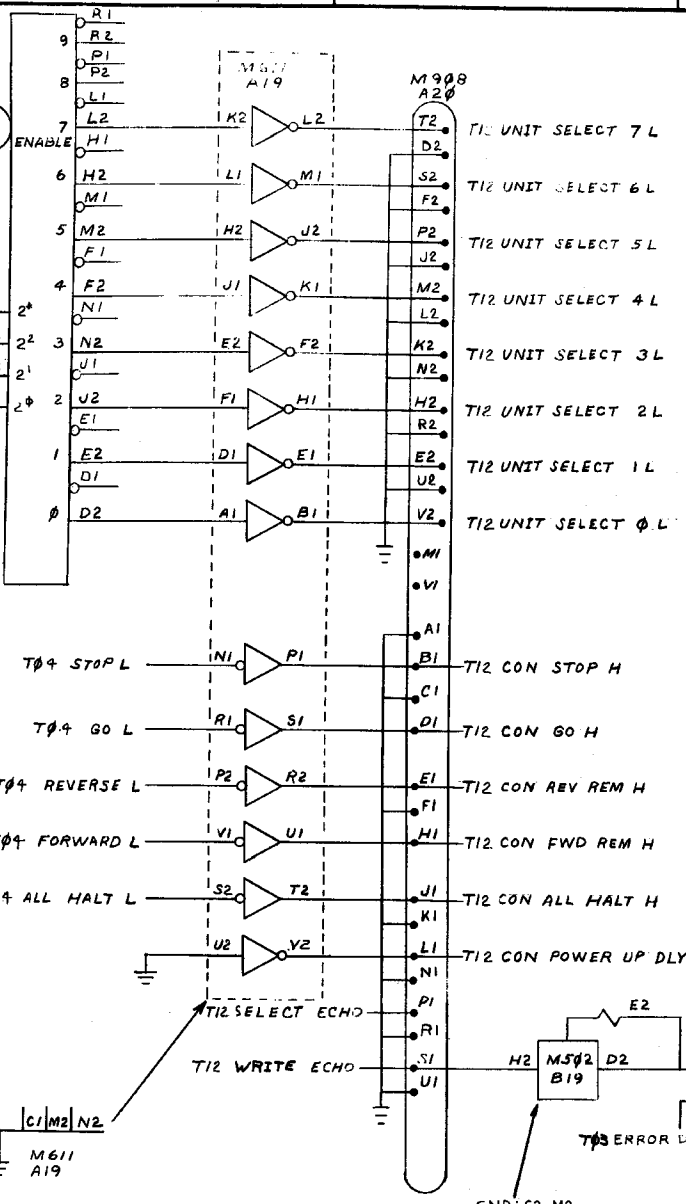
C

B

A

REV	CHG	NO	DATE	BY	CHK
1	A	0002	12-1-71	JANSON	
2	B	0003	12-1-71	JANSON	
3	C	0008	12-1-71	JANSON	
4	D	0011	12-1-71	JANSON	

DEC FORM NO. DRD 102A



6

6

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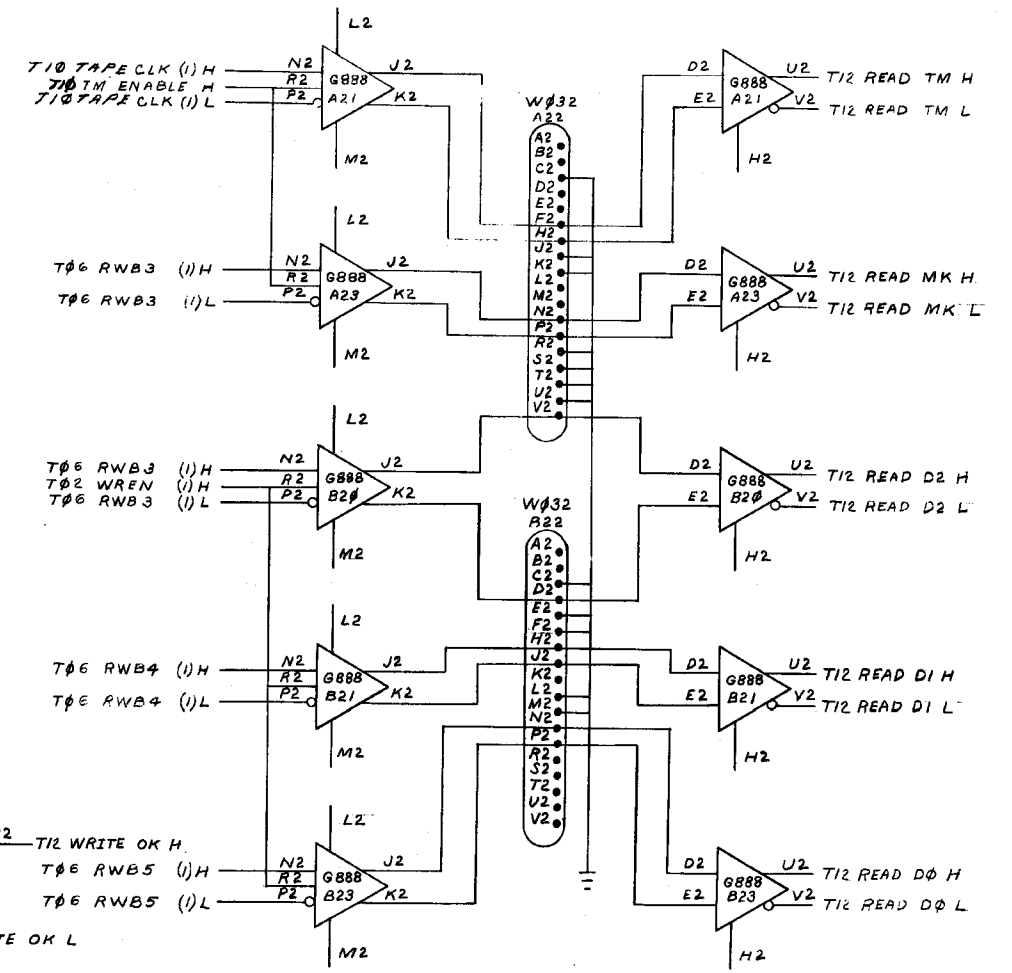
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2

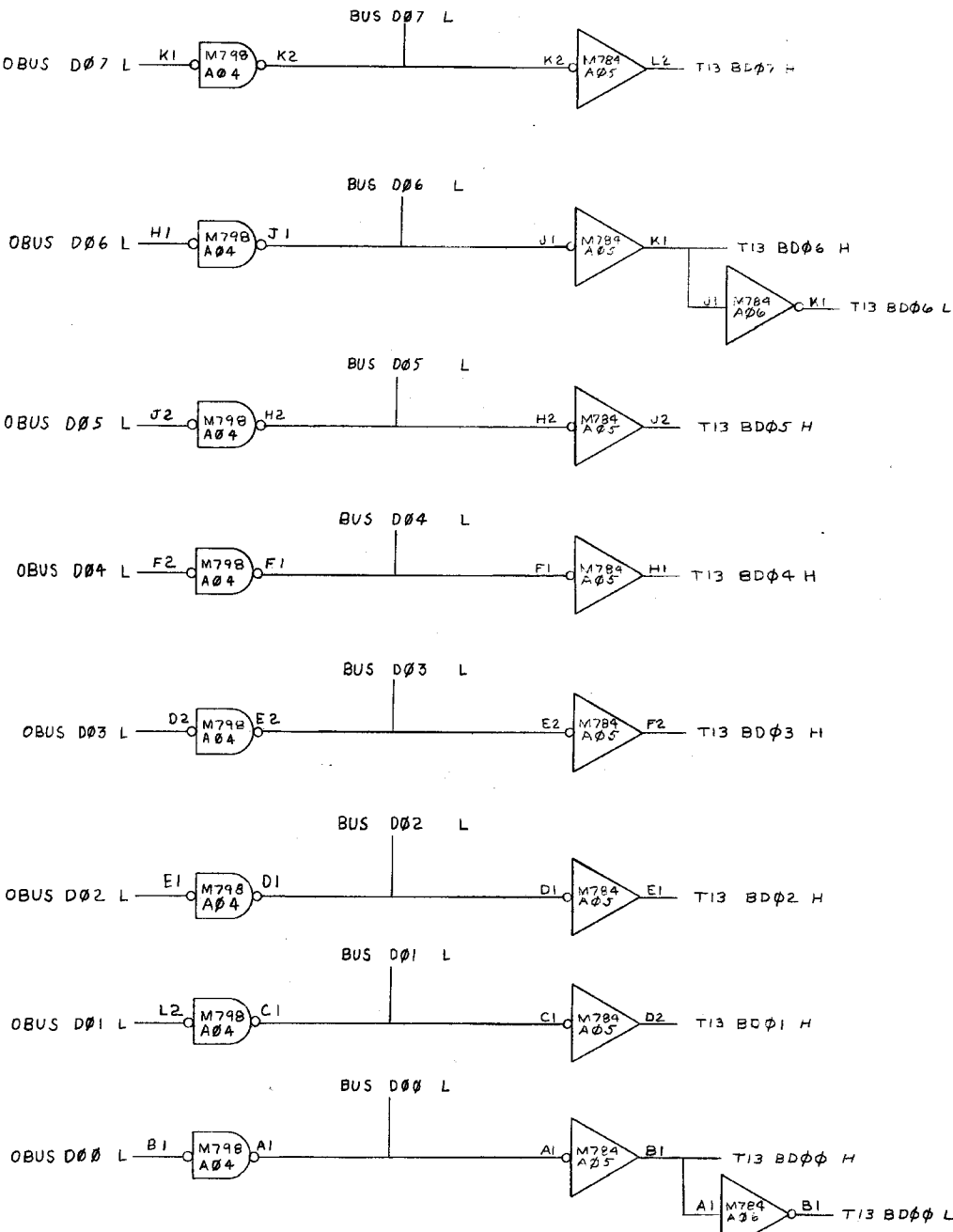
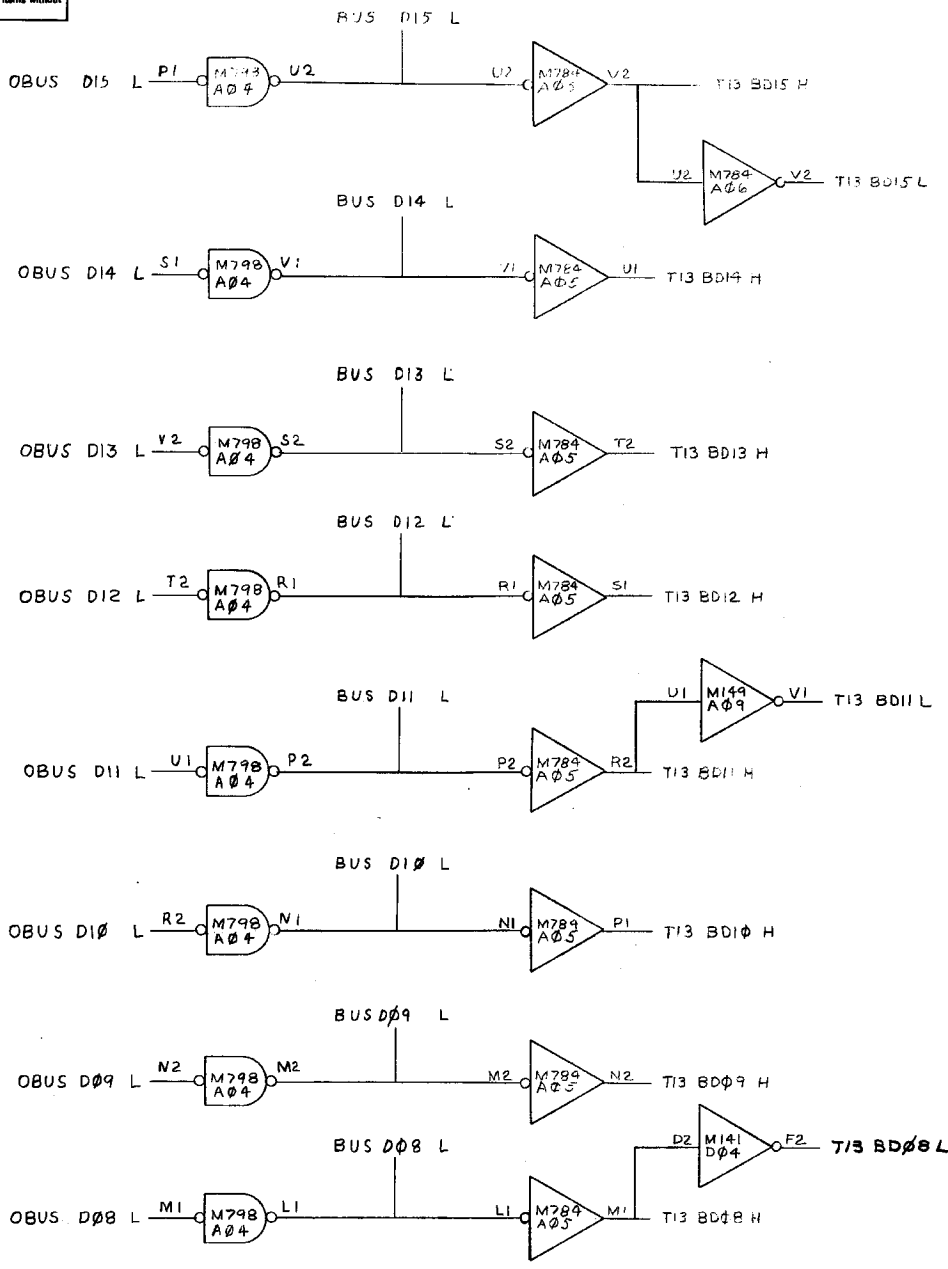
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1



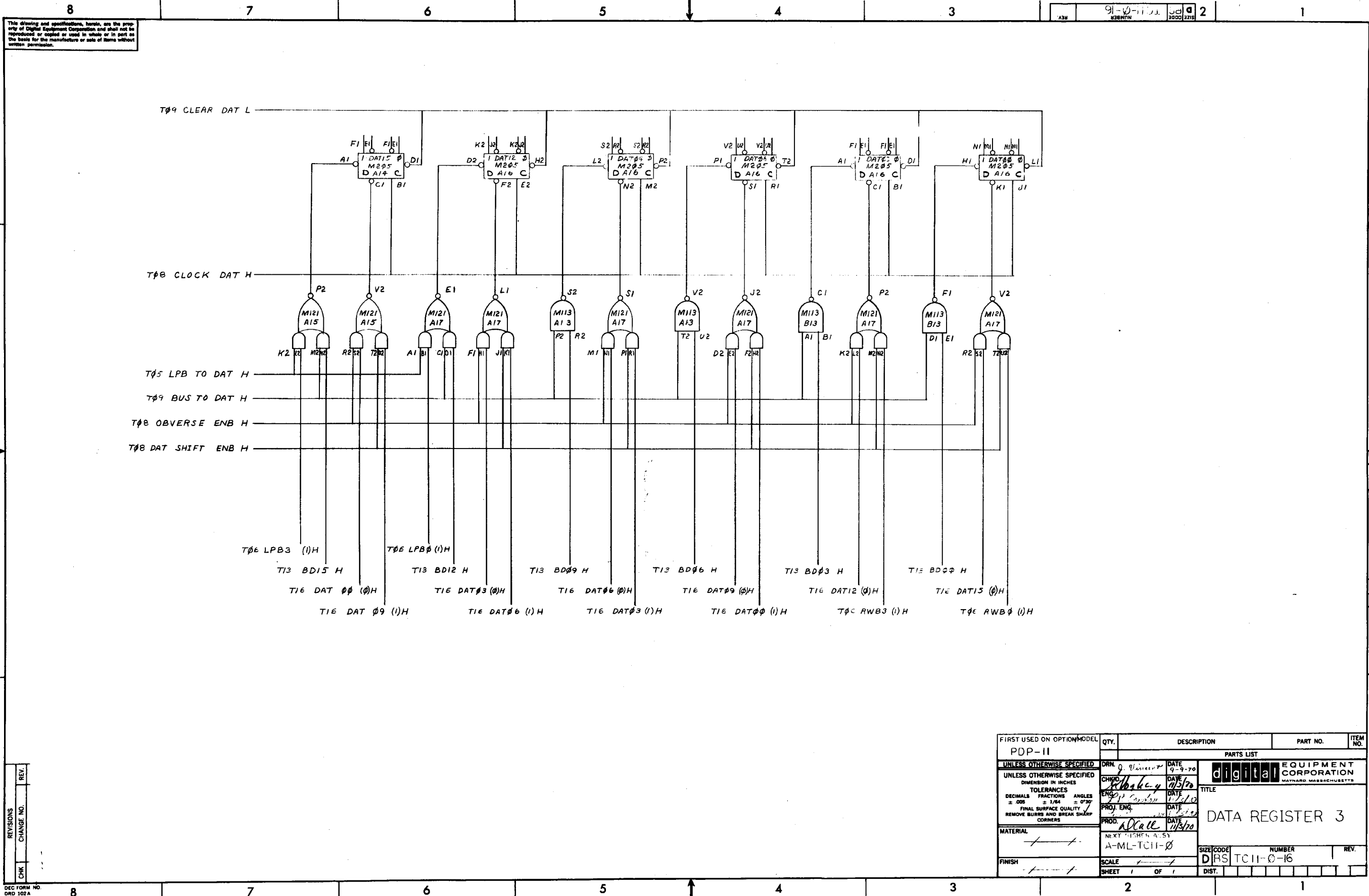
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REV	CHG	NO.
1	1	1

REV	CHG	NO.
1	1	1

FIRST USED ON / OPTION / MODEL		QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP-11					
UNLESS OTHERWISE SPECIFIED		PARTS LIST			
UNLESS OTHERWISE SPECIFIED		digital EQUIPMENT CORPORATION			
DIMENSION IN INCHES		MAYNARD, MASSACHUSETTS			
TOLERANCES		TITLE			
DECIMALS FRACTIONS ANGLES		UNIBUS DRIVERS AND RECEIVERS			
± .005 ± 1/64 ± .030		DATE 11/5/70			
FINAL SURFACE QUALITY / REMOVE BURRS AND BREAK SHARP CORNERS		DATE 11/5/70			
MATERIAL		NEXT HIGHER ASSY			
FINISH		A-MLTC11-0			
SCALE		SHEET 1 OF 1			
SHEET		SIZE / CODE			
		D BS TC11-0-13			
		REV.			

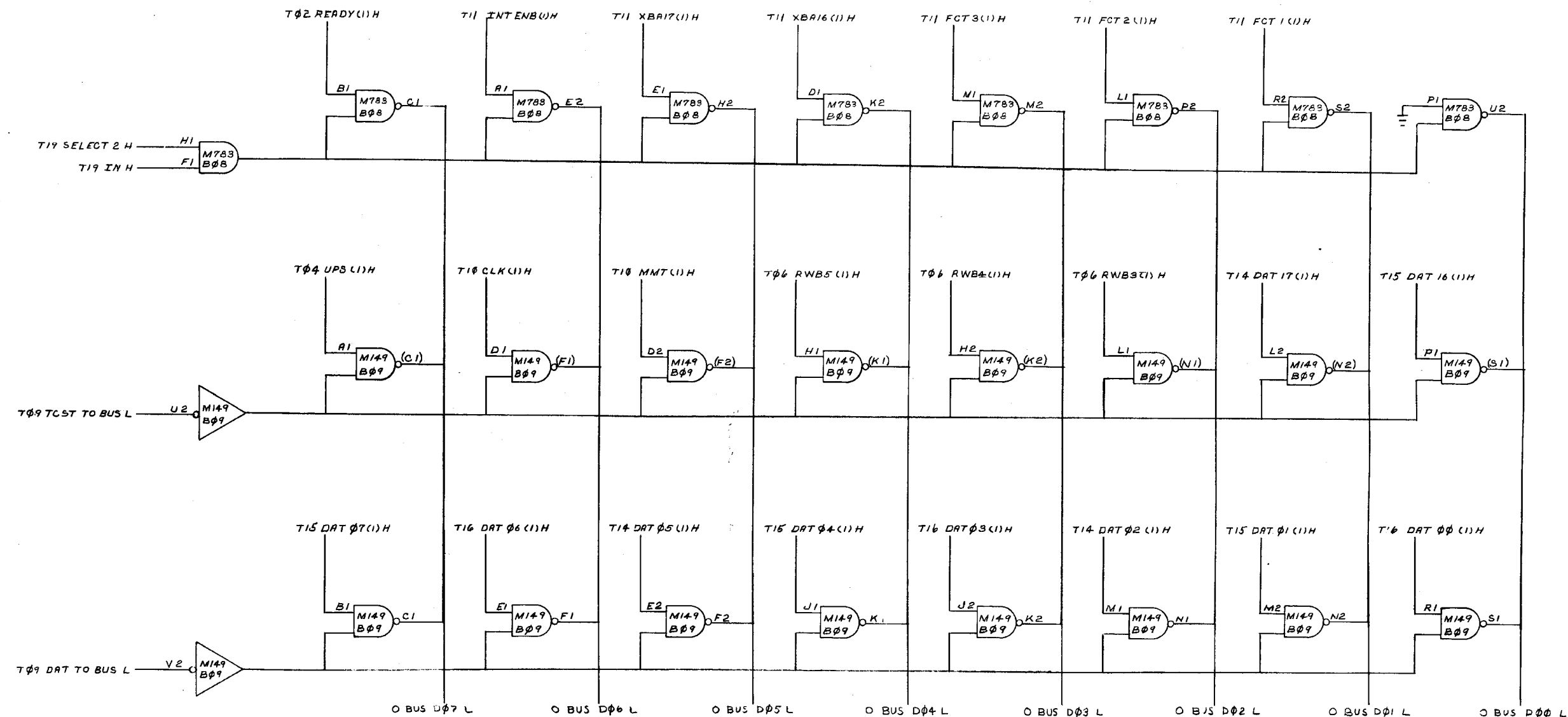


REV.	CHG.	NO.

DEC FORM NO. 000 102A

FIRST USED ON OPTION MODEL		QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP-11					
UNLESS OTHERWISE SPECIFIED		PARTS LIST			
DIMENSION IN INCHES		DRN.	DATE	digital CORPORATION	
TOLERANCES		CHG.	DATE	MAYNARD, MASSACHUSETTS	
DECIMALS FRACTIONS ANGLES		ENG.	DATE	TITLE	
± .005 ± 1/64 ± 0°30'		PROJ. ENG.	DATE	DATA REGISTER 3	
FINAL SURFACE QUALITY		PROD.	DATE	SIZE CODE	
REMOVE BURRS AND BREAK SHARP CORNERS		NEXT HIGHEN ALSY		NUMBER	
MATERIAL		A-ML-TC11-0		REV.	
FINISH		SCALE		DIST.	
SHEET 1 OF 1					

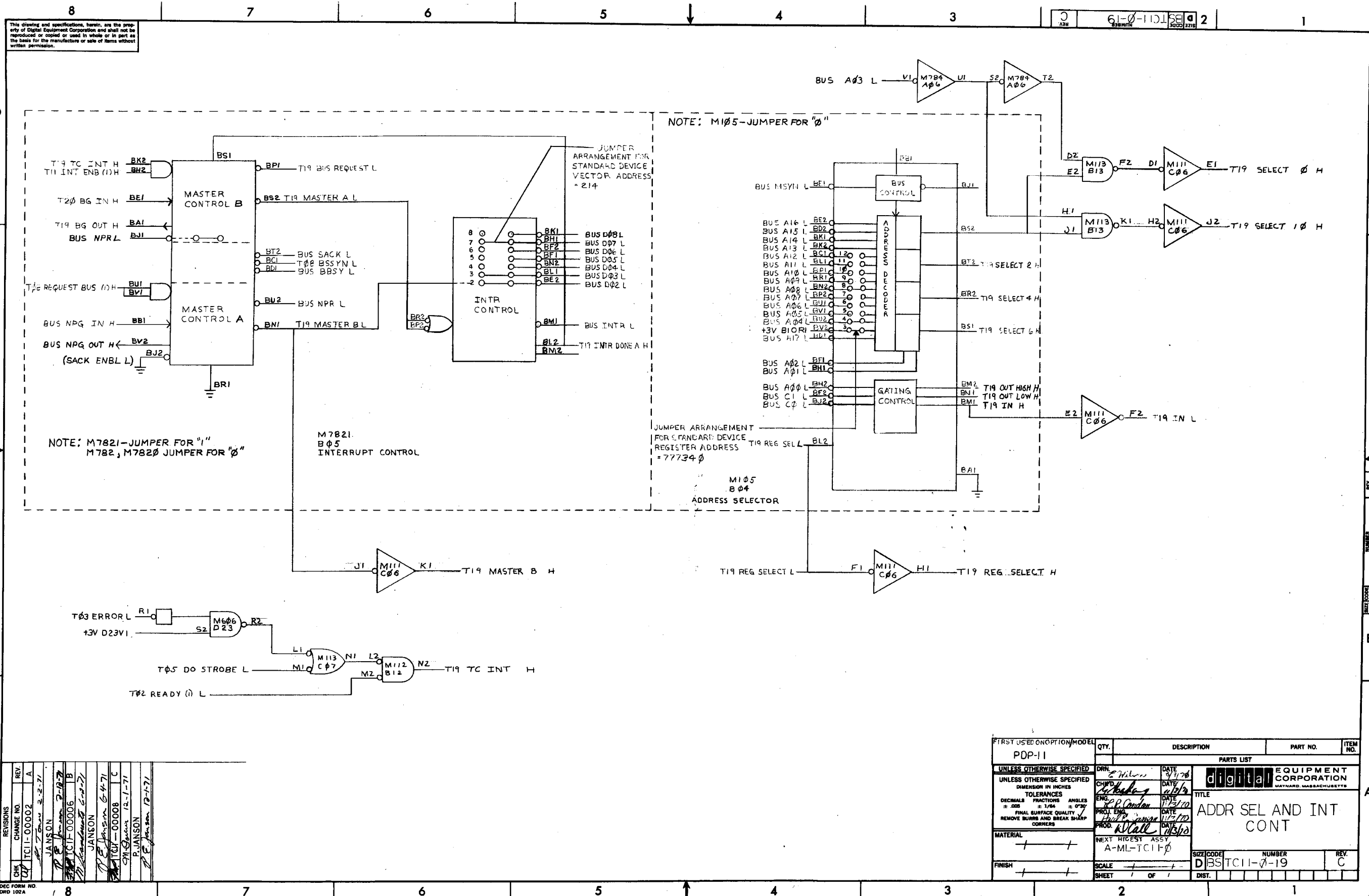
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FIRST USED ON OPTION/MODEL		QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP-11					
UNLESS OTHERWISE SPECIFIED		PARTS LIST			
DIMENSION IN INCHES		digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS			
TOLERANCES		TITLE			
DECIMALS FRACTIONS ANGLES		DATE 9/13/70			
± .005 ± 1/64 ± 0°30'		DATE 11/3/70			
FINAL SURFACE QUALITY		DATE 11/3/70			
REMOVE BURRS AND BREAK SHARP CORNERS		DATE 11/3/70			
MATERIAL		NEXT HIGHER ASSY			
FINISH		A-ML-TC11-0			
SCALE		SIZE CODE			
SHEET		NUMBER			
		REV.			
		DIST.			

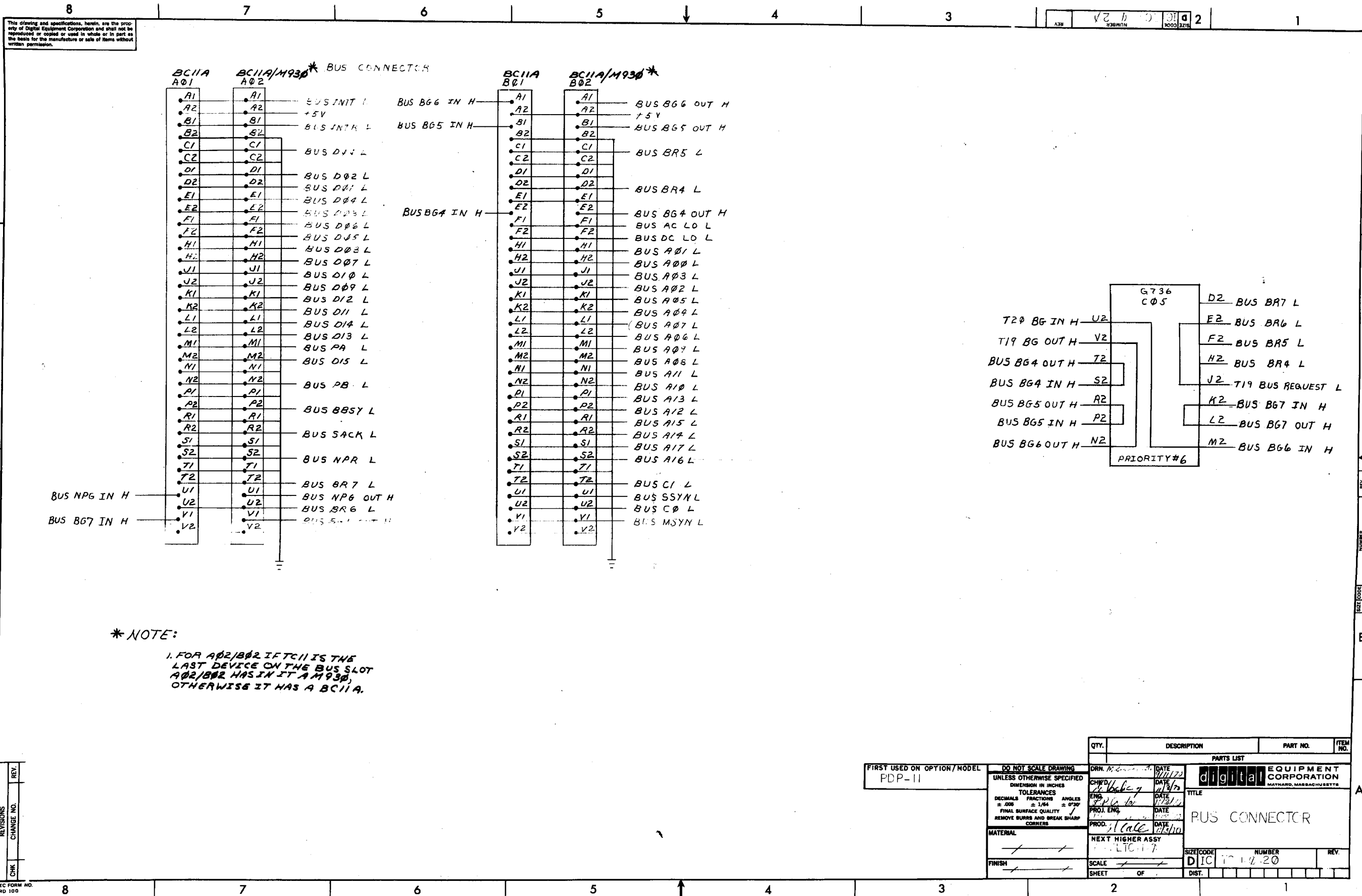
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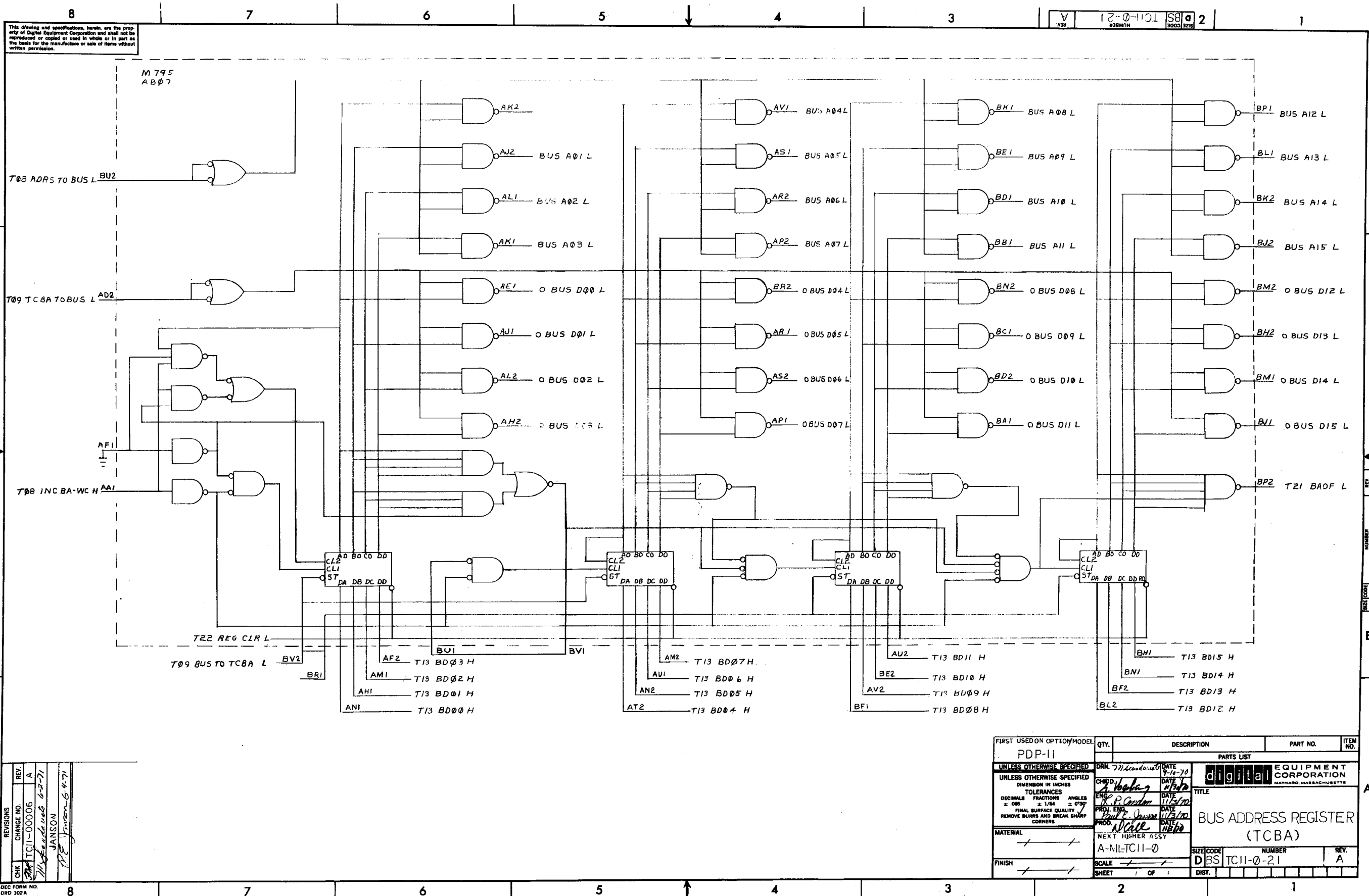
DEC FORM NO. DRD 102A



REV.	CHG. NO.	DATE	BY	CHK.
1	00002	3-2-71	JANSON	
2	00006	3-18-71	JANSON	
3	00008	6-4-71	JANSON	
4	00010	12-1-71	P. JANSON	
5	00012	12-1-71	P. JANSON	

FIRST USED OPTION/MODEL POP-11		QTY.	DESCRIPTION	PART NO.	ITEM NO.
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES DECIMALS FRACTIONS ANGLES ± .005 ± 1/64 ± 0°30' FINAL SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS		DRN. <i>E. Wilson</i> DATE <i>8/11/70</i> CHD. <i>W. Wilson</i> DATE <i>8/11/70</i> ENG. <i>R. P. Gaudin</i> DATE <i>11/3/70</i> PROJ. ENG. <i>W. Wilson</i> DATE <i>11/3/70</i> PROD. <i>W. Wilson</i> DATE <i>11/3/70</i>	PARTS LIST digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS		
MATERIAL FINISH		TITLE ADDR SEL AND INT CONT			





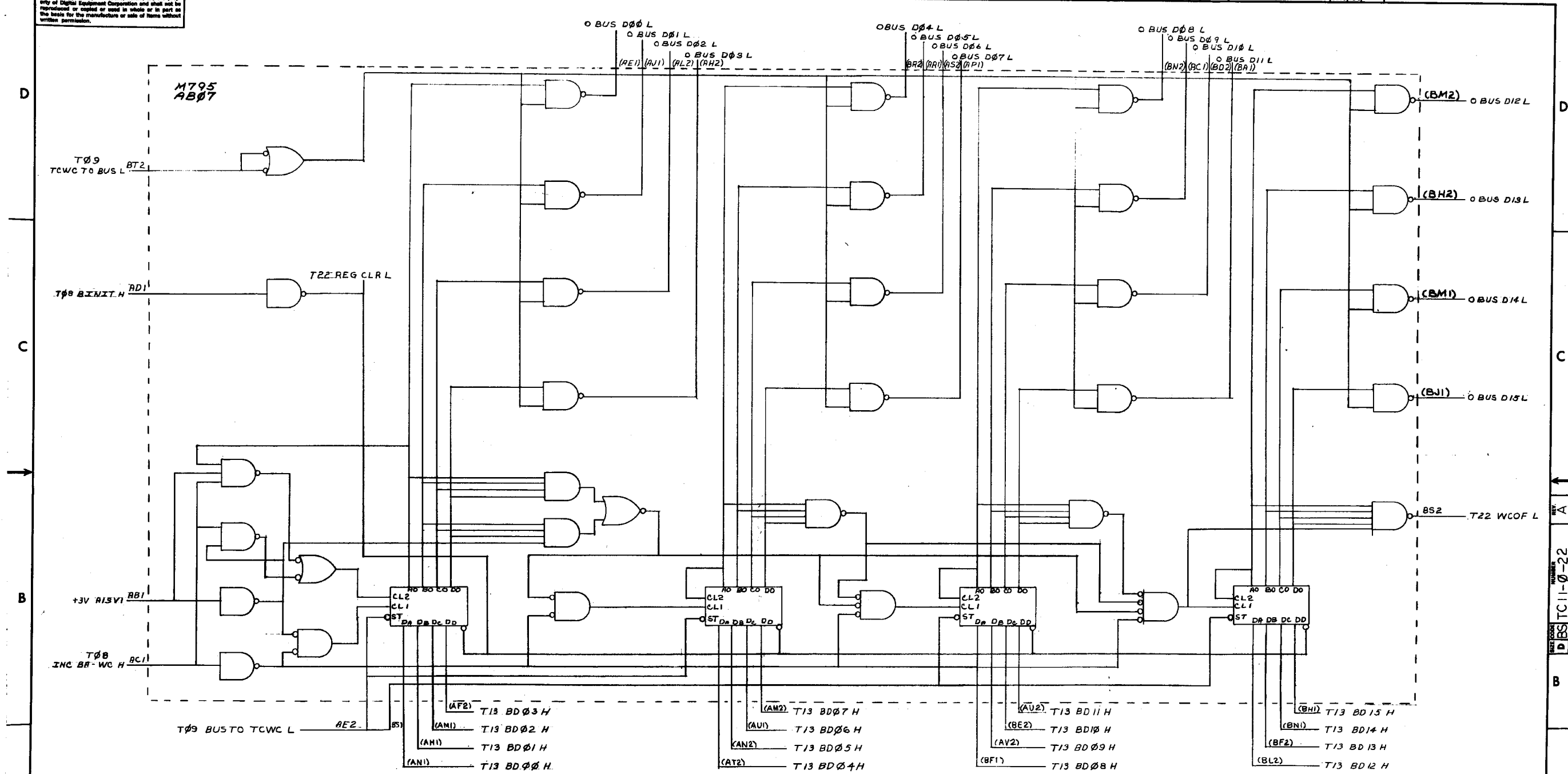
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REV.	CHG. NO.	DATE	BY	CHK.
1	00006	6-2-71	JANSON	
2		6-4-71		

FIRST USED ON OPTION MODEL		QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP-11					
UNLESS OTHERWISE SPECIFIED		PARTS LIST			
UNLESS OTHERWISE SPECIFIED		digital EQUIPMENT CORPORATION			
DIMENSION IN INCHES		MAYNARD, MASSACHUSETTS			
TOLERANCES		TITLE			
DECIMALS FRACTIONS ANGLES		BUS ADDRESS REGISTER			
± .005 ± 1/64 ± 0°30'		(TCBA)			
FINAL SURFACE QUALITY		SIZE CODE			
REMOVE BURRS AND BREAK SHARP CORNERS		D BS TC11-0-21			
MATERIAL		NUMBER			
NEXT HIGHER ASSY		REV. A			
FINISH		SCALE			
SHEET		OF			

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22-0-1101 2



REV.	CHANGE NO.	DATE
A	1	11/13/70
B	2	11/13/70
C	3	11/13/70
D	4	11/13/70
E	5	11/13/70
F	6	11/13/70
G	7	11/13/70
H	8	11/13/70

FIRST USED ON OPTION/MODEL PDP 11		QTY.	DESCRIPTION	PART NO.	ITEM NO.
UNLESS OTHERWISE SPECIFIED		PARTS LIST			
UNLESS OTHERWISE SPECIFIED		digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS			
DIMENSION IN INCHES		TITLE			
TOLERANCES		WORD COUNT REGISTER (TCWC)			
DECIMALS FRACTIONS ANGLES		SIZE/CODE NUMBER REV.			
± .005 ± 1/64 ± 0°30'		DBS TC 11-0-22 A			
FINAL SURFACE QUALITY		DIST.			
REMOVE BURRS AND BREAK SHARP CORNERS		SHEET 1 OF 1			
MATERIAL		NEXT HIGHER ASSY			
FINISH		A-ML-TC11-0			

TC11.F		HND288.V16(16) 03/31/72		24-MAY-72		21112		PAGE 1	
RUN NAME		A/P PIN ORDER		Q DRAW RV PG Y		REMARKS		LENGTH	
								EXCEPTIONS	
								21112	
								RUN	
								NUMBER	
*3 A13V1	A13V1	1-01 *	T01S	2	1				
*3 A13V1	A13V1	1-02 *	T10	2	1				
*3 A13V1	A13V1	1-03 *	T11	2	1				
*3 A13V1	A13V1	1-04 *	T11	2	1				
*3 A13V1	A13V1	1-05 *	T10	2	1				
*3 A13V1	A13V1	1-06 *	T10	2	1				
*3 A13V1	A13V1	1-07 *	T10	2	1				
*3 A13V1	A13V1	1-08 *	T21	2	1				
*3 A13V1	A13V1	1-09 *	T21	2	1				
*3 A13V1	A13V1	1-10 *	T21	2	1				
*3 A13V1	A13V1	1-11 *	T21	2	1				</

